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Improving the International Compatibility of Accountancy Data: The 'DACH-Initiative'

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Abstract Germany (D), Austria (A) and Switzerland (CH) share a long tradition in monitoring the economic performance of forest enterprises by means of forest accountancy networks. The results generated by these networks are a valuable empirical basis for forestry sector statistics in these countries. In the context of international analyses it is common practice to compare results between countries directly, without addressing the issue of compatibility. However, severe biases and even misjudgements may result from such simplistic approaches. These networks have been developed as national solutions, and their results are neither grounded on common methodological standards nor on attuned definitions, so that their compatibility is not guaranteed. The rising interest in international comparisons indicates that existing accountancy networks may well serve additional purposes. At the same time the importance of compatibility, if not standardisation, is highlighted. The institutions in charge of forestry accountancy networks in these countries recently launched an initiative to establish comparable datasets and to provide additional background information allowing a sound interpretation of any differences. This paper reflects the associated challenges, describes the agreements achieved as well as the common approaches adopted, and presents respective forestry financial results. This example illustrates the prospects as well as the limitations of deriving comparable data from heterogeneous sources. Initially, only few ratios are suited for valid comparisons. However, international compatibility could be improved substantially by computing alternative aggregates following a

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harmonized concept, the individual records of the participating enterprises providing respective details. In respect to some items, harmonization still hinges on specific amendments of the national data-frames. The preliminary findings indicate that the significance of biases varies to a great extent, so that a specific and prudent assessment is suggested. It is recommended that respective interfaces are provided when designing new forest accountancy data networks and amending existing ones in this respect.

Keywords Forest accountancy networks · Ratio analysis · Consistency · Comparability

Introduction

There is a rising interest in international comparisons of the economic performance of forest enterprises (e.g. see Hartebrodt and Möhring 2004; FTP 2009). The transformation from predominantly regional towards international and even global timber markets triggered changing information needs as forest enterprises began interacting via common markets. Policy-makers deciding on national sector strategies are interested in the competitiveness of enterprises (e.g. see BMLFUW 2006). Internationally operating (institutional) investors are keen on sound and standardized data with regard to the profitability of forestry ventures. Forest owners and managers of forest enterprises benefit from international comparability of respective data because this broadens the basis for statistical analyses, harmonized reporting and individual benchmarking.

Due to the legal status of the bulk of forest enterprises in Central Europe and the predominance of small units, only a few companies publish annual reports. Therefore international reporting standards such as IAS/IFRS (e.g. see Penttinen and Rantala 2008) are scarcely established in the sector. However, in some European countries economic information can be obtained from forest accountancy networks where forest enterprises voluntarily provide their accounting data for monitoring purposes (e.g. see Stridsberg and Algvere 1967; Hyttinen et al. 1997; Sekot 2000a). Consequently, there have been several attempts to compare results of national or sub-national monitoring exercises (e.g. see Rochot 1984; Brandl 1993, Sekot 2000b; Brenner 2001). All of these comparisons have suffered from a lack of consistency in regard to the underlying data due to different concepts, methods and definitions. Methodological guidelines (e.g. see Penttinen and Hakkarainen 1998; Niskanen and Sekot 2001) are just recommendations and cannot guarantee the necessary level of consistency.

As yet, it has not been possible, even within the European Union, to harmonize accountancy schemes and establish consistent datasets. There is no common forestry policy or any other international scheme or authority requiring harmonized statistics and with an ability to enforce such requirements. Consequently, top-down approaches requesting compliance with general standards would hardly work. Neither would it be possible to enforce the adoption of any such standards nor to assess the quality of the results. Even strict guidelines and definitions cannot

guarantee compliance. Seemingly compliant data may be heavily biased due to deviating standards and definitions underlying the data provided. The interest in consistent time series of results motivates maintaining the national definitions and methods and thus inhibits a general harmonization of approaches.

In 2004 major institutions engaged in the national forest accountancy data networks in Germany (D), Austria (A) and Switzerland (CH) decided to intensify their co-operation and started what came to be known as the *DACH initiative*. One of the core topics of common interest is to improve the comparability of results and to enable and assist valid international comparisons. The paper documents the joint efforts in this respect. Based on a brief characterization of the participating accountancy networks, the initial deficits in terms of inter-country compatibility and comparability are identified. Specific approaches for bridging these gaps are outlined and the improvements which can be achieved on the basis of readily available data are illustrated by making reference to a first set of harmonized ratios. Amendments for overcoming the remaining obstacles are proposed and further refinements – especially in regard to international benchmarking on the level of regional sub-samples – are suggested.

Research Method

The basic idea of the DACH initiative is to build on the existing national accountancy networks and to explore the extent to which specific modifications of standard protocols and computations can help to generate consistent results. For this purpose, a common set of unanimously defined ratios is to be confronted with national standards.

National Forest Accountancy Data Networks in the DACH Countries

Germany, Austria and Switzerland share the longest tradition of economic monitoring by means of forest accountancy networks (e.g. see Hyttinen et al. 1997). The beginnings date back to the 1950s with these networks continuously serving as the backbone of forestry statistics and providing policy-makers with detailed information on the current status as well as on the development of the economic situation within the sector (e.g. see Sekot 1996, 2000c, 2006, 2007, 2009; WVS 1998; Baron et al. 2004; Hartebrodt et al. 2005, 2007; Burri 2009). In addition, the networking activities promote the implementation of managerial and cost accounting in forestry and support various kinds of interfirm comparisons (Sekot 1998, 2000d, 2008; Sekot and Hoffmann 2007; Sekot and Rothleitner 2009, Möhring et al. 2009).

In all three countries a scheme of full absorption costing is applied and aggregated results are expressed in terms of ratios (see e.g. Sekot and Rothleitner 1999, 2009). As compared to standards and elements of financial accounting (see e.g. Hyder et al. 1999), this framework provides more detail in terms of cost centres and is independent from regulations regarding income tax. Traditionally, the focus is on cost analysis and aspects of rationalization, whereas an extensive financial

Table 1 Forest accountancy data networks co-operating within DACH

Characteristic	Baden-Württemberg (D)	Austria (A)	Switzerland (CH)
Accounting period	Calender or fiscal year	Mostly calender year	Mostly calender year
Number of enterprises	~ 119	~ 100	200
Type of ownership	Private and communal	Mostly private	Various kinds of public
Size limit	> 200 ha	> 500 ha	> 50 ha
Average size of enterprises	~ 950 ha	~ 3,100 ha	~ 1,000 ha
Average annual cut per enterprise	~ 8,300 m^3	~ 21,300 m^3	~ 4,500 m^3
Sampling scheme	Purposive	Self selection	Representative
Number of regional groupings	7	6	4

ratio analysis as suggested for example by Penttinen and Hakkarainen (1998) would hardly be supported by the forest enterprises participating in the network. Changes in the value of the standing timber are addressed indirectly in terms of model calculations based on the allowable cut.

Due to its federal structure, the national network in Germany actually comprises a set of harmonized accountancy networks established at provincial level. In the following discussion, Germany is represented by the province of Baden-Württemberg, where the Forest Research Institute manages the regional network and acts as the German key player of the DACH initiative. An extension to other provinces (especially Bavaria) is likely in the near future, whereas comprehensive, national participation hinges on political commitment and specific organizational arrangements.

In spite of the common methodology, as well as historical background, the networks co-operating within DACH developed independently and have major differences in various respects (see Hercher and Fillbrandt 2007; Sekot and Rothleitner 2009; Burri 2006). The objects of investigation differ in terms of size and type of ownership, and approaches taken (e.g. the accounting period and sampling schemes) vary. Table 1 provides a brief overview of the network characteristics of the three countries.

Further differences pertain to the organization of the networking activities and to the technical concepts as well as to the software solutions. Deviating definitions of various ratios impair the international comparability of the results as do the heterogeneous rules and protocols applied to cost accounting.[1] Whereas some of the characteristics distinguishing the three data pools are quite obvious, and hence can be addressed directly, the identification of others requires highly specific background information.

[1] The interested reader may refer to the following websites for a documentation of the national approaches: http://www.bmelv-statistik.de/de/testbetriebsnetz/buchfuehrungsergebnisse-forstwirtschaft/ for D, https://moodle.boku.ac.at/course/category.php?id=5, course 'Betriebsabrechnung und Betriebsvergleich für forstliche Testbetriebe' (password for a guest access: FOB_BAB) for A, and http://www.forstbar.ch/ for CH.

Origin and Achievements of the 'DACH Initiative'

DACH follows a bottom-up approach: it commences with the diverse data available and strives for the identification and the bridging of respective gaps in order to achieve the highest level of comparability. The process started with a workshop in Freiburg (D) in 2004, where the various national approaches and networks were presented and discussed. The Swiss representatives took the initiative and proposed establishment of a consistent documentation of the accountancy networks and agreement on a provisional list of key ratios which should be defined in a joint effort. Respective concepts and ideas were further discussed at a workshop on international comparability held in Gmunden (A) in 2007. In spring 2008, a first set of harmonized data was presented during a meeting in Solothurn (CH). The results presented at the Figures for Forests workshop in November 2008 in Freiburg (D) document the preliminary level of accomplishment. Apart from the computation of harmonized regional results related to data from 2006 no further progress has been achieved since then, the institutions engaged suffering from a severe lack of capacity. Furthermore, the comparability of more recent data is hampered by the effects of major windblows which occurred in several regions.[2] However, there is a commitment in terms of extended analyses and further improvements to be achieved before the next conference due in 2011.

The initial dataset comprises 120 items for which harmonized definitions were elaborated and agreed upon. The items are arranged in a systematic way allowing for extensions and refinements. There are nine groups of variables with up to seven levels of differentiation starting with highly aggregated figures like total revenue and addressing also details such as sales of hardwood pulpwood at the millgate (Table 2).

From these 120 basic items a total of 200 ratios can be derived. Being a tentative exercise, the concept intentionally comprises ratios at different levels of aggregation. Although the focus is on timber production, aggregates at higher levels (including the forest enterprise and the entire company comprising other lines of production such as services) are also being addressed. Conversely, detailed information such as the sales revenue for softwood sawlogs at the roadside is also part of the concept. The bulk of ratios refer to the units of timber volume or forest area. Several other measures and aggregates, such as the turnover ratio of the forest enterprise, complement the dataset. Due to the detailed classification of timber proceeds, revenue items per ha (34.0%) and per m^3 (32.5%) dominate the structure of the DACH dataset. Cost items contribute with another 21.5%. The remaining 24 items (12.0%) pertain to derived ratios defined at various scales (e.g. €/m^3, €/ha, %, m^3/ha).

It has to be observed that the ratio figures per cubic metre involve several differing volume measures. Four cost items associated with harvesting are related to the net volume harvested at the expense of the forest enterprise (i.e. the total cut reduced by the amount of sales on the stump). The various wood revenues are

[2] For more information on the effects of these windblows on the accounting results, see Baron et al. (2004).

Table 2 Structure of the initial DACH dataset

Group no.	Kind of item	Number of variables	Number of levels
1	Forest area	3	2
2	Volume cut and utilized	5	2
3	Sales volume	3	2
4	Cost	23	6
5	Revenue	68	7
6	Net profit	6	3
7	Contribution margin	3	2
8	Turnover ratio	6	3
9	Cutting intensity	3	2

quoted per unit of the respective assortment so that they correspond to general price statistics. All of the other ratios per cubic metre are defined in relation to the volume of total cut.

A first assessment indicated that a considerable number of items is not generally covered by the standard reports but might be derived by referring to the underlying datasets of the individual enterprises. Differences in some definitions and protocols, which were identified, are generally more complicated to tackle, maintaining the consistency of the national results being a predominant request.

Progress Achieved and Obstacles Encountered

In the course of the DACH activities, some substantial improvements could already be achieved. Each of the participants developed operational guidelines for deriving the harmonized data within the national concept at the enterprise level and implemented respective procedures for generating aggregates and reports.

Peculiarities, Amendments and Remaining Gaps in the Case of Germany

The German definition of the forest area comprises all actually or potentially stocked forest land and thus exceeds the limits of commercial forest and the harmonized definition. However, the specific characteristics documented at the level of the individual enterprise allow the required measures to be derived so that valid ratios per hectare can be obtained. Another systematic difference pertains to the cutting volume which also includes felled, but unrecovered, solid volumes. By referring to the utilized volume instead, compatible figures per cubic metre can be provided. Hence, respective adjustments are generally required, but can be accomplished. Another necessary adaptation is the delimitation of hunting and fishing in terms of costs and revenues. This too, can be done at the level of the primary data of the individual enterprise.

With regard to the DACH dataset, a major deficiency remains in terms of timber revenues. The recorded data have insufficient detail so comparisons with German

results can only be performed at higher levels of aggregation. Consequently, 55 ratios (46%) could not be assessed for the year 2006. Depending on the adoption of generally intended amendments, three of them may become available anyway.

Peculiarities, Amendments and Remaining Gaps in the Case of Austria

The only major deviation from harmonized definitions in Austrian forestry accounting pertains to the forest area. The comparison of national definitions revealed that the measure applied in Austria encompasses all forest land rendering revenues and not just the net area devoted to timber production. Hence, nature reserves and other forest land not available for wood production are included under the condition that the forest owner obtains a specific income, e.g. from compensation paid by funds for nature conservation. The national definition also comprises permanently unstocked forest land within commercial forests including forest roads. These deviations introduce a systematic bias in per hectare values which has to be considered when interpreting the results. Starting with the accountancy year 2009, additional data are being collected to support fully compatible measures and to assess the biases associated with the data of previous periods.

Out of the total of 200 DACH items, 31 (15.5%) are available as part of the standard reports. Another 137 (68.5%) are part of the standard documentation at enterprise level and could be provided in additional reports. The bulk of these figures is made up of various timber revenues which are not generally assessed at this level of detail. Hence, the share of ratios where full compliance is achievable is about 84%. Another six items could be assessed but have a somewhat reduced compatibility due to slightly deviating definitions such as the overhead costs of forestry. Nineteen ratios (9.5%) can be derived only on the basis of those enterprises effectively documenting these optional figures, for example the costs and revenues associated with auxiliary production and services. In these cases the potential for valid comparisons is reduced to individual sub-samples, the calculated averages being indicative only. The remaining seven items (3.5%) are generally not applicable to Austria, because in Austria forest enterprises do not act as authorities. These ratios refer to the role of particular types of public forest enterprises in Germany and Switzerland, which are part of the state's administration and are not only managing public forests but at the same time performing the duties of government agencies.

Peculiarities, Amendments and Remaining Gaps in the Case of Switzerland

The Swiss standards of reporting differ considerably from those established in the other two countries. The salaries of personnel are joined to the individual cost centres and not pooled under the heading of administration. Several definitions, delimitations and classifications differ. Consequently, most of the original results are not compatible with reference data from other countries so that inter-country comparisons are not valid. However, the framework for data recording at the level of the enterprise is highly detailed so that the central database comprises a vast

range of basic figures for each unit. Therefore, it is possible to compute alternative aggregates in compliance with the harmonized concept. Ultimately, a DACH-specific report has been designed which fulfils all the requirements for a valid comparison with the other two countries. Hence, all of the DACH items defined so far can be computed for all kinds of groupings. About half of the items (53%) are adapted standard results whereas the remainder have to be computed specifically.

Preliminary Achievements and Comparisons of Harmonized Results

In the first phase, harmonized results were computed for the year 2006. Out of the set of 120 original items, 55 (45.8%) could be established consistently for all three countries, 51 (42.5%) could be derived for Austria and Switzerland only, and the remaining 14 (11.7%) were common for Germany and Switzerland. Table 3 provides a summary of statistics of compatibility for the total of 200 ratios.

Although half of the total number of ratios cannot be provided for Germany, this lack of compliance is not significant because they relate only to specific timber revenues. The deficiencies with respect to Austria pertain to the abovementioned issue of optional data documentation. Some of the basic data required for the computation of specific ratios is recorded in terms of a voluntary extension of the standard framework only. At best, the respective ratios could be calculated on the basis of specifically selected sub-samples of those enterprises providing these data. Even if this was done, the ratios derived would be less representative and in some cases also less accurate than those ratios which are part of the standard reports, depending on the size of the respective sub-sample and the comprehensiveness of documentation at enterprise level.

The characterization of the ratios refers to their availability in terms of standard reporting, their level of compliance with the harmonized definitions as well as to the coverage within the respective sample. This three-dimensional assessment, which might be extended to the validity, reliability and accuracy of the underlying data, indicates the necessity of prudent analysis and interpretation. Table 4 provides examples for the case of Austria.

Table 3 Distribution of compatibility achieved within D–A–CH (%)

Type of item	Unit	D–A–CH	D–CH	A–CH
Cost items (n = 21)	€/m^3	80.9	19.1	0.0
Cost items (n = 22)	€/ha	77.3	22.7	0.0
Revenue items (n = 65)	€/m^3	20.0	1.5	78.5
Revenue items (n = 68)	€/ha	20.6	4.4	75.0
Derived ratios (n = 5)	€/m^3	100.0	0.0	0.0
Derived ratios (n = 9)	€/ha	66.7	33.3	0.0
Derived ratios (n = 7)	%	57.1	42.9	0.0
Derived ratios (n = 3)	m^3/ha	100.0	0.0	0.0
Total (n = 200)		39.5	9.5	51.0

Table 4 Characterization of ratios at the example of Austria

Item code	Ratio	Unit	Availability	Compatibility	Coverage
4.1	Total costs of forest management	€/ha	Standard	Mostly	All units
4.1.1.2.1	Cost of weeding and pre-commercial thinning	€/ha	Non-standard	Mostly	Some units
4.1.1.3.1	Cost of felling, hauling and transport (unit cost)	€/m^3	Non-standard	Fully	All units
4.1.2.4.1	Share of personnel costs on forestry overheads	%	Non-standard	Fully	All units
5.1.1.1.1.1	Sale of coniferous timber at the roadside	€/m^3	Non-standard	Fully	All units
5.1.1.1.2.2.2	Sale of hardwood pulpwood at the millgate	€/ha	Non-standard	Mostly	All units
5.1.2	Subsidies	€/ha	Standard	Mostly	All units
6.1	Net profit of forest management	€/m^3	Standard	Fully	All units
6.3	Net profit of services	€/ha	Non-standard	Mostly	Some units
7.0	Contribution margin on total timber sales	€/m^3	Non-standard	Fully	All units
8.1.1	Turnover ratio of wood production	%	Non-standard	Fully	All units
9.0	Cutting intensity (total harvest)	m^3/ha	Standard	Mostly	All units

Quantitative examples of the respective harmonized results are presented in Table 5. The German sample comprises private as well as communal forests; the results are presented separately for these two groups corresponding to the German standards of reporting and thus acknowledging the respective peculiarities. The subsample of private forests in Baden-Württemberg can be seen as a counterpart to the Austrian network which is dominated by private enterprises. The community forests in Germany more closely resemble the Swiss enterprises in terms of legal status and type of ownership.

The comparison between harmonized and original results integrated in Table 5 is an indication as to the varying significance of respective biases. Whereas some items show no difference at all, others become available on DACH-basis only. Systematic differences in definitions may hardly affect the outcome in some cases but trigger major distortions in others. Turnover ratio of wood production in the case of Austria is an impressive example for the possible magnitude of respective biases.

A first analysis of the results reveals that the comparison of harmonized data can indeed provide relevant and interesting insights. General judgements can be quantified on a sound basis; unexpected similarities and differences may well inspire respective hypothesis and further investigations. For instance, it was well known before that the levels of subsidies are comparatively high in Switzerland. A more unexpected result is that the private forest enterprises in Baden-Württemberg received slightly less public money per hectare than the Austrian ones. This could be an exceptional result of the specific year, however. Further analysis might reveal why the private enterprises in Germany show almost the same net profit per cubic

Table 5 Examples of harmonized results, for year 2006 (original standard results in brackets)

Item code	Ratio	Unit	D communal	D private	A	CH
4.1	Total costs of forest management	€/ha	359.24 (351.36)	314.43 (317.15)	319.76 (319.75)	412.2 (397.05)
4.1.1.2.1	Cost of weeding and pre-commercial thinning	€/ha	6.96 (6.78)	6.33 (6.26)	4.82 (n.a.)	34.05 (28.43)
4.1.1.3.1	Cost of felling, hauling and transport (unit cost)	€/m^3	24.31 (24.31)	19.57 (19.57)	23.07 (21.25)	40.69 (36.77)
4.1.2.4.1	Share of personnel costs on forestry overheads	%	83.16 (n.a.)	68.99 (n.a.)	58.43 (n.a.)	59.00 (59.00)
5.1.1.1.1.1	Sale of coniferous timber at the roadside	€/m^3	55.72 (n.a.)	57.15 (n.a.)	63.18 (n.a.)	58.87 (45.98)
5.1.1.1.2.2.2	Sale of hardwood pulpwood at the millgate	€/ha	n.a. (n.a.)	n.a. (n.a.)	2.07 (n.a.)	5.36 (n.a.)
5.1.2	Subsidies	€/ha	11.05 (10.76)	9.46 (9.35)	10.70 (10.70)	117.24 (90.05)
6.1	Net profit of forest management	€/m^3 (tc)	6.20 (n.a.)	17.38 (n.a.)	17.18 (16.03)	−0.37 (−3.71)
6.3	Net profit of services	€/ha	−16.72 (n.a.)	−11.99 (n.a.)	−1.74 (n.a.)	5.84 (−1.19)
7.0	Contribution margin on total timber sales	€/m^3 (tc)	28.81 (n.a.)	32.70 (n.a.)	37.02 (36.58)	10.10 (2.48)
8.1.1	Turnover ratio of wood production	%	21.04 (n.a.)	35.95 (n.a.)	44.44 (26.34)	−16.36 (−27.00)
9.0	Cutting intensity (total harvest)	m^3/ha	7.79 (7.58)	9.84 (9.72)	6.95 (6.95)	5.40 (6.15)

€/m^3 (tc): reference is the volume of total cut

n.a. not available

metre as the Austrian ones although their cutting intensity was far higher, the unit costs of harvesting were lower and their total costs of forest management were slightly lower.

A joint discussion of the results highlighted the fact that comparative analyses based on overall (national) averages can support highly general interpretations only. Any considerations in terms of *benchmarking* have to refer to more specific data which reflect the conditions of smaller and more homogeneous regional groupings. Regional impacts such as differing levels of calamities may heavily affect the numerical results and hence have to be considered specifically. In 2007, for instance, a major windblow triggered extraordinarily high levels of cutting in the Austrian regions 2 and 5, whereas region 1 was less affected and the other regions remained more or less unharmed.

The forestry regions distinguished within the individual country may serve as a basic differentiation in terms of comparative analyses. The standard classification distinguishes seven regions in Baden-Württemberg, six in Austria and four in Switzerland. The regional results approximately reflect the generally different conditions in terms of climate, tree species composition and terrain. A preliminary assessment of such general similarities is provided in Table 6.

Figures 1 and 2 illustrate differences in two harmonized key performance indicators (area harvested and net profit) for year 2006. In principle, the regional results reflect the substantial differentiation within the countries and do follow a general pattern. Dry lowland areas like D1, D2 and A3 show low levels of productivity as well as of profitability. An alpine setting is also associated with significant disadvantages. Nevertheless, A5 and A6 exceed the results of A3 by far, whereas CH4 shows the poorest results of all Swiss regions.

Discussion and Outlook

International comparisons of economic ratios require consistent definitions and harmonized standards. The tentative exercise of the DACH initiative demonstrates

Table 6 Regional sub-units within DACH and their most similar counterparts (in square brackets)

Baden-Württemberg (D)	Austria (A)	Switzerland (CH)
D1: Oberrheinisches Tiefland [A3]	A1: Alpenvorland [D4; CH2]	CH1: Jura [D3; D5; D6; A2]
D2: Odenwald [A3]	A2: Wald- und Mühlviertel [D3; D5; CH1]	CH2: Mittelland [D4; A1]
D3: Schwarzwald [A2; CH1]	A3: östliches Flach- und Hügelland [D1; D2]	CH3: Voralpen [D7; A4]
D4: Neckarland [A1; CH2]	A4: Alpenostrand [D6; CH4]	CH4: Alpen und Alpensüdseite [A4; A5; A6]
D5: Baar-Wutach [A2; CH1]	A5: Kalkalpen [CH4]	
D6: Schwäbische Alb [A4; CH1]	A6: Zentralalpen [CH4]	
D7: Südwestdeutsches Alpenvorland [A1; CH3]		

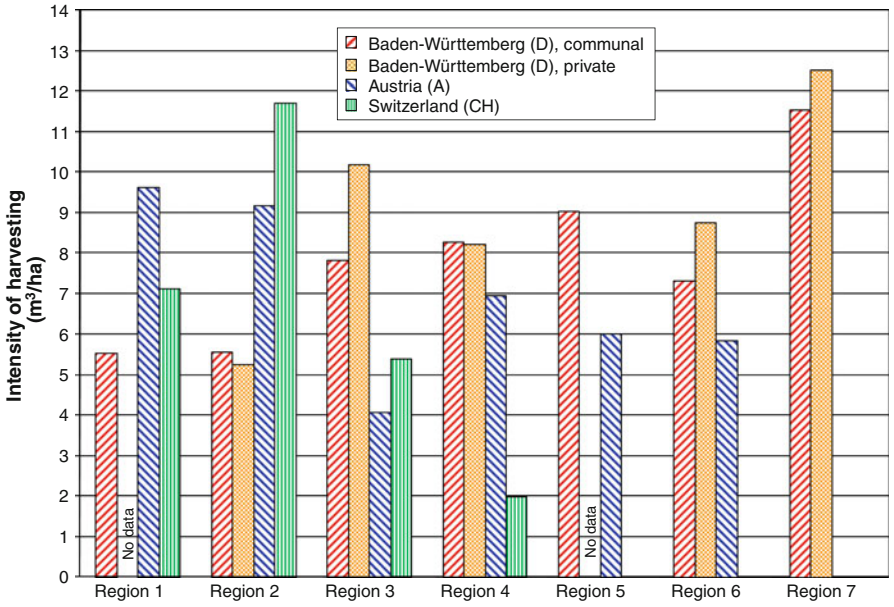

Fig. 1 Regional differentiation in terms of intensity of harvesting

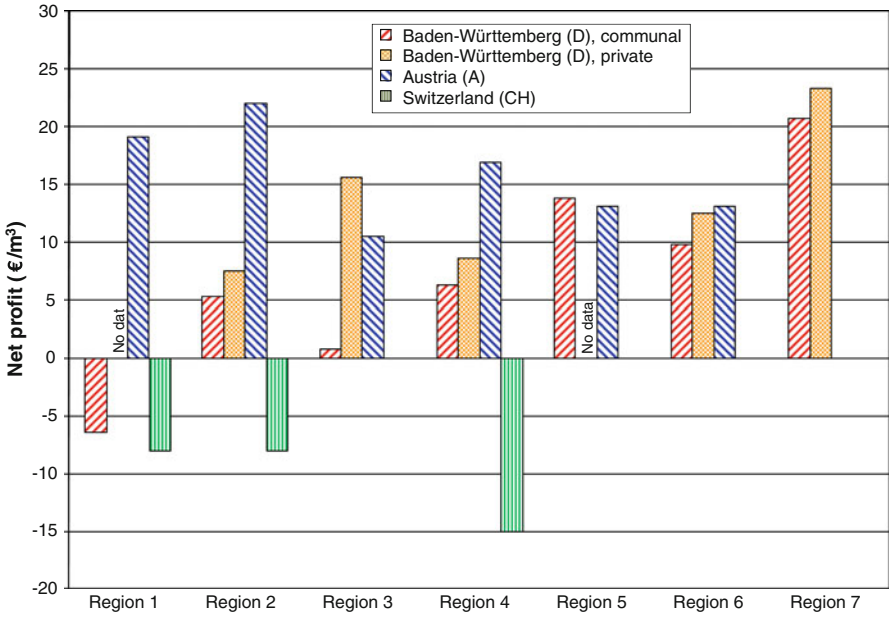

Fig. 2 Regional differentiation in terms of net profit of forest management

that national or regional forest accountancy networks may indeed serve as major sources of required information. However, an in-depth analysis of the underlying concepts is indispensible for clarifying whether specific amendments are required.

Only those figures checked and approved by a consortium of the institutions responsible for the individual networks should be considered as valid and hence be used for inter-country comparisons. The interpretation of differences has to take into account any limitations in terms of consistency and comparability documented by specific annotations provided by such a consortium.

So far, the DACH initiative has triggered two major improvements in data. The co-ordinated extension of the national standard reports has made more ratios available for comparison. In addition to this achievement in terms of quantity of information, the quality of the underlying data has been improved substantially. Specific adaptations have increased the level of compatibility and remaining differences still impairing direct comparisons are being identified and assessed for harmonization.

The evolutionary approach of the DACH initiative followed the philosophy of achieving stepwise progress without impairing national schemes and time series. Any necessary adaptations are realized in terms of additional, harmonized standard reports specifically designed for this purpose. Optional amendments and extensions of the dataset are seen as potential further enhancements of data compatibility. International comparability is developed and esteemed as a fringe benefit of national networking activities. Clearly, the success of the exercise hinges on respective follow-up and follow-through supported by all the parties involved. There are indeed obstacles which have to be considered and overcome. For instance, institutional arrangements still have to be achieved, so that accountancy data refer to the whole of Germany not just Baden-Württemberg. It has to be taken into account though, that international comparability is not a national priority and good intentions are prone to be overruled by more urgent tasks.

For the time being, the DACH consortium has decided on the following extensions of the initial exercise:

1. Performing a comprehensive comparison of the national datasets including the validation of computations and the interpretation of the results thereby identifying any shortcomings of the current concept.
2. Extending the analysis to time series so that developments of the various ratios and structural changes can be compared.
3. Extending the set of harmonized variables and ratios, e.g. a further breakdown into type of costs.
4. Establishing an organizational framework for routine comparisons as well as for the publication of numerical results and interpretations on the national and regional (sub-national) level.
5. Organizing an international workshop addressing forest owners, managers, consultants and policy-makers as potential users of the results obtained by inter-country comparisons of accountancy data.

Further activities considered so far comprise the provision of guidelines for the interpretation of respective results and establishing a common DACH database. The extension to additional countries or regions within countries is another option for future development. General recommendations to take into account aspects of comparability in terms of flexibility and interfaces could supplement the MOSEFA

guidelines for establishing forest accountancy data networks which were first produced by Niskanen and Sekot in 2001. This issue is considered as one of the main topics for an international workshop on forest accountancy data networks scheduled for 2011.

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